

US-PAT-NO: 5691817

DOCUMENT-IDENTIFIER: US 5691817 A

TITLE: Apparatus and method for
calibration in a spectrophotometer

DATE-ISSUED: November 25, 1997

INVENTOR-INFORMATION:

NAME	STATE	ZIP CODE	CITY	COUNTRY
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APPL-NO: 08/ 700155

DATE FILED: August 20, 1996

PARENT-CASE:

This application is a continuation of Ser. No. 08/514,792 filed Aug. 14, 1995 which is a continuation of Ser. No. 07/975,981 filed Nov. 13, 1992 which is a continuation of Ser. No. 07/679,995 filed Mar. 29, 1991 which is a continuation of Ser. No. 07/487,670 filed Mar. 1, 1990, all now abandoned.

US-CL-CURRENT: 356/405

ABSTRACT:

A spectrophotometer apparatus (200) is adapted

to provide spectral reflectance measurements of object samples. The apparatus (200) comprises a source light (254) and a reflection optics assembly (264, 268). Signals representative of reflected light are analyzed and data provided to an operator representative of the spectral response characteristics of the object sample (252). The apparatus (200) further comprises a side sensor (276) having a fixed spectral response characteristic for compensating the reflectance measurements in accordance with the light intensity emanating from the lamp. For purposes of calibration, a series of time-sequenced measurements are made of a reference sample. Utilizing these measurements, the apparatus (200) provides computations of compensation coefficients for each spectral segment. The compensation coefficients are utilized, with the side sensor measurements, to provide normalization of the reflectance measurements for each segment and for each measurement within the timed sequence. For each segment, a scale factor is then determined. The scale factors, compensation coefficients and side sensor measurements are employed to compensate actual reflectance measurements, with further compensation provided by a determination of temperature coefficients.

43 Claims, 9 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 9

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Brief Summary Text - BSTX (43):

Various types of compensation and calibration arrangements are known for utilization in color measuring devices. For example, in Suigyama et al, U.S.

Pat. No. 4,773,761 issued Sep. 27, 1988, a photoelectric colorimeter is

disclosed having a series of photodiodes for measurement of an object sample,

and a corresponding series of photodiodes for measurement of the light source.

A measured value of the object value is divided by a measured value of the light source, for purposes of attempting to cancel fluctuations of the light source.

US Reference Patent Number - URPN (17):

4773761

US Reference Group - URGP (17):

4773761 19880900 Sugiyama et al. 356/405